

PATENT ABSTRACTS OF JAPAN

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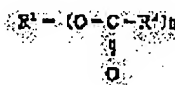
(54) SHAMPOO COMPOSITION

(57)Abstract:

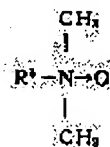
PURPOSE: To obtain a shampoo composition capable of sufficiently exhibiting softness-imparting effect characteristic to a guanidine derivative without losing foaming ability by compounding a nonionic surfactant, e.g. a sugar alcohol ester with a guanidine derivative.

CONSTITUTION: At least one substance is selected from at least one kind of a nonionic surfactant group selected from a sugar alcohol ester of formula I (R1 is a disaccharide residue; R2 is an alkyl or an alkenyl; (n) is 1 or 2), an amine oxide of formula II (R3 is a 8-18C alkyl or alkenyl), a polyoxyethylene alkyl ether of formula III (R4 is a 8-20C alkyl or alkenyl; (m)=3-20) and a

polyoxyethylene alkylphenyl ether of formula IV. The objective shampoo composition is composed of the selected nonionic surfactant in combination with a guanidine derivative. As the guanidine derivative, e.g. a compound of formula V or formula VI is selected. This shampoo composition can finish hair in a soft smooth touch.



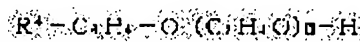
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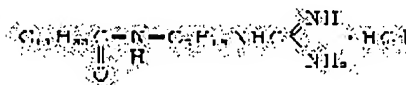
II



III



IV



V



VI

LEGAL STATUS

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to a shampoo constituent. Furthermore, in detail, the bubble engine performance is good and is related with the shampoo constituent excellent in the engine performance which gives flexibility to hair.

[0002]

[Description of the Prior Art] In washing of the former and hair, although the cleaning agent and the finishing compound were used separately, the various attempts in which the independent constituent which has the property of the both is prepared are made, and the many are the attempts which are going to prepare the constituent having the effectiveness as a cleaning agent, and the effectiveness as a finishing compound by adding a specific component to a cleaning agent constituent in recent years.

[0003] As a component added to a cleaning agent, moisturizers, such as a water-soluble silicone derivative, a water-soluble glyceride derivative, propylene glycol, a glycerol, and ethylene glycol, or a hydrocarbon, silicone oil, etc. are well-known, and use of the quarternary ammonium salt which is a softening agent or a rinse basis, a nonionic surface active agent (JP,53-133206,A), an amphoteric surface active agent (JP,50-23407,A), a specific anionic surface active agent (JP,52-35203,A), and a specific cationic surface active agent (JP,47-47845,B) is also known further. Moreover, it is indicated by U.S. Pat. No. 3472840 that the shampoo which blended the polymer JR resin of cation nature cellulosic resin etc. has the desirable property of both a shampoo and a rinse.

[0004] However, the above-mentioned additive does not necessarily show sufficient effectiveness. For example, since a water-soluble silicone derivative and a water-soluble glyceride derivative are water solubility, the many will be passed by rinse and effectiveness is not fully demonstrated. a feel with propylene glycol, smooth glycerol, ethylene glycol, etc. -- to some extent -- giving -- although carried out, it has the fault that what was washed is sticky. Although a hydrocarbon oil, silicone oil, etc. have the engine performance which gives smoothness to what is washed, when combination to a liquid cleaning agent is difficult or blends these, they also have the fault of the cellular force of a cleaning agent deteriorating.

[0005] Moreover, also by addition of quarternary ammonium salt or various kinds of surfactants, the finishing effectiveness of raising the flexibility acquired by those addition, hairdressing nature, hairdressing nature, etc. cannot be said to be sufficient thing, but is degrading the foam formation force of a cleaning agent conversely. About the shampoo constituent which blended the polymer JR resin which is water-soluble cation nature cellulosic resin, although excelled about the cleaning effect, about the point of grant of the flexibility after desiccation, it cannot be satisfied.

[0006]

[Problem(s) to be Solved by the Invention] This invention makes it the technical problem to offer the shampoo constituent excellent in the engine performance which is excellent in the foam formation force, and gives flexibility to hair.

[0007]

[Means for Solving the Problem] this invention persons came to complete a header and this invention for the shampoo constituent with which the flexibility grant effectiveness which a guanidine derivative has was fully demonstrated being obtained, without spoiling the foam formation force by using together a specific nonionic surface active agent and a specific guanidine derivative, as a result of repeating research wholeheartedly that said technical problem should be solved.

[0008] That is, according to this invention, the shampoo constituent which contains at least a kind of nonionic surface active agent chosen from the specific nonionic surface active agents expressed with following general formula (1) - (4) and a guanidine derivative is offered.

[0009] (Sugar-alcohol ester)



(the inside of a formula, and R1 -- disaccharide residue and R2 -- carbon numbers 9-17 -- the alkyl group of 11-15 or an alkenyl radical, and n show the number of 1 or 2 preferably)

It becomes [the feel of the bubble formed of this thing is inferior, and / by that by which the carbon number of R2 exceeds 17 / underwater homogeneity distribution of this thing] poor on the other hand and is not desirable when the carbon number of R2 is less than nine. As disaccharide residue R1, the residue from disaccharides, such as saccharose, a maltose, and a lactose, is mentioned. As an approach for manufacturing the sugar-alcohol ester expressed with said general formula (1), disaccharide is melted to dimethylformamide, fatty-acid methyl ester is added, and the approach of an alkali catalyst carrying out bottom heating under reduced pressure of existence, and performing an ester exchange reaction, the approach of making distribute fatty acid ester in the shape of a detailed drop particle under existence of fatty-acid soap by dissolving disaccharide in propylene glycol or water, and making it react in the state of transparent emulsified liquid, etc. are adopted. As an example of representation of sugar-alcohol ester expressed with a general formula (1), a lauric-acid sugar ester, Lacty toll lauric-acid ester, maltitol lauric-acid ester, etc. are mentioned, for example. These sugar-alcohol ester can be monoester, II triester, or these mixed ester. general -- the weight ratio of monoester and II triester -- 100 / 0 - 10/90 - the mixed ester of 80 / 20 - 30/70 is used preferably.

[0010] (Amine oxide)



(the inside of a formula, and R3 -- carbon numbers 8-18 -- the alkyl group or alkenyl radical of 12-16 is shown preferably)

There is the following matter as an example of representation of amine oxide expressed with a general formula (2). N and N-dimethyl N-lauryl amine-oxide, N, and N-dimethyl N-alkylamine oxide (however, alkyl group to which alkyl is guided from palm oil fatty acid),

N and N-dimethyl N-capryl lactam amine-oxide, N, and N-dimethyl N-PARIMI chill amine-oxide, N, and N-dimethyl N-myristoyl amine oxide etc.

[0011]

(Polyoxyethylene alkyl ether)

R4-O-(C2H4O)m-H (3)

(Polyoxyethylene alkyl phenyl ether)

R4-C6H4-O(C2H4O)m-H (4)

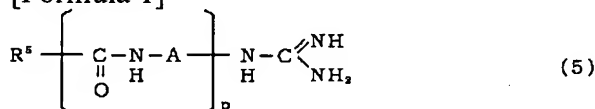
(the inside of a formula, and R4 -- carbon numbers 8-20 -- desirable -- the alkyl group or alkenyl radical of 10-16 -- being shown -- m -- 3-20 -- the number of 3-12 is shown preferably)

In said general formula (3) and the nonionic surface active agent of (4), an alkyl group or the alkenyl radical R4 can be the shape of a straight chain, and a branched-chain thing, and the carbon number is [the radical] good to select in the range of 8-20. Since the surface-active engine performance falls when a carbon number is less than eight, detergency worsens. On the other hand, since water solubility will fall if a carbon number comes to exceed 20, the stability of a bubble worsens, it foams and the engine performance falls. The desirable carbon numbers of R4 are 10-16. Moreover, m which shows the number of ethyleneoxide addition mols in this nonionic surface active agent is good to select from the range of 3-20, on the other hand, a hydrophilic property becomes strong too much and oil solubility dirt stops easily a detergency and the foaming engine performance worsening, and being able to remove it, if m comes to exceed 20 since it becomes oleophilic when m is two or less. Ethylene oxide addition mol several desirable m is 3-12.

[0012] Said general formula (1) One sort of nonionic surface active agents expressed with - (4) may be used, and may be used combining two or more sorts. The loadings are usually more preferably chosen in 10 - 20% of the weight of the range still more preferably five to 25% of the weight one to 30% of the weight based on the whole constituent.

[0013] this invention constituent contains a guanidine derivative with said nonionic surface active agent. Although a well-known thing is conventionally used as such a guanidine derivative, the desirable thing is the guanidine derivative which has the amide group expressed with the following general formula (5), or its salt.

[Formula 1]



(As for the inside R5 of a formula, an alkyl group or an alkenyl radical is shown, A shows an alkylene group or an alkenylene group, p is the integer of 1-5, and when p is two or more, A under each block may differ mutually)

although especially the carbon number of the substituent R5 which shows an alkyl group or an alkenyl radical is not restrained -- usually -- the carbon number -- 1-22 -- it is 11-19 preferably. Moreover, R5 can be the alkyl group or alkenyl radical of the shape of the letter of branching, or a straight chain. As a permutation R5, C11H23-, C12H25-, C13H27-, C14H29-, C15H31-, C16H33-, 2(C8H17) CH-, and 4-C2H5-C15H30-, C14H27-, C15H29-, C16H31-, etc. are mentioned, for example. the carbon number of the connection radical A which shows an alkylene group or an alkenylene group -- 1-10 -- it is 2-6 preferably. The connection radical A can be the alkylene group or alkenylene group of the shape of the letter of branching, or a straight chain. As a connection radical A, a methylene group, ethylene, a propylene radical, a butylene radical, a pentene radical, a hexylene radical, an isopropanal pyrene radical, 2-pentenyl radical, 2-ethyl butylene radical, etc. are mentioned, for example.

[0014] The guanidine derivative expressed with said general formula (5) is usually blended with a constituent in the form of a salt. As a salt in this case, although organic-acid salts, such as inorganic-acid salts, such as a hydrochloride, a glycolic-acid salt, acetate, citrate, and an acidic-amino-acid salt, etc. are mentioned, when considering as an inorganic-acid salt and considering as a hydrochloride and an organic-acid salt from points to water, such as solubility, specifically, a glycolic-acid salt is desirable.

[0015] A guanidine derivative is not restricted to this, although what is expressed with said general formula (5) is used preferably. A guanidine derivative is blended with a constituent in the form of independent or mixture. Although especially the loadings are not restrained, it is 1 - 3 % of the weight preferably 0.05 to 5% of the weight among a constituent.

[0016] Since it has in intramolecular the guanidine radical which is a strong base nature machine, and this radical has resonance mold univalent anion kinds, such as a carboxy anion, the firm electrostatic effect which can make a firm twins nature ion object, and hydrogen bond ability, and the guanidine derivative used by this invention has very good compatibility and forms the above-mentioned anion kind and twins nature ion to protein fibers, such as a keratin which has a resonance mold univalent anion kind

in an end side chain, that adsorption power is also powerful. Therefore, its fixing ability of a water molecule improves in an operation of the amide group which exists in that intramolecular, and this thing is excellent also in the moistness grant effectiveness to hair while it can give the flexibility which adsorbed to hair strongly and was excellent to hair. And it can stick to this thing good also to the damage hair over which the adsorption capacity to the hair which became a hydrophilic property on that molecular structure, especially in Parma etc. was high, and it mourned not only in the normal hair after washing but in Parma etc., it can give flexibility and moistness, and it can fully solve un-arranging in accordance with the shampoo of hair, superfluous removal of the sebum after the Parma processing, etc. [0017] In order to adjust the washing engine performance and whippability further to this invention constituent, optimum dose combination of the surfactants, such as nonionic surface active agents other than the above, an anionic surface active agent, or an amphoteric surface active agent, can be carried out. As a surface active agent in this case, polyoxyethylene higher-alcohol phosphoric ester or its salt, polyoxyethylene higher-fatty-acid ester, or its salt is mentioned, for example.

[0018] Especially the shampoo constituent of this invention can blend the auxiliary additive generally used in the range which does not check the purpose of this invention if needed. As such an additive, antioxidants, such as mineral salt, a solubilizing agent, BHT (2,6-di-tert-butyl-4-methylphenol), and alpha-tocopherol, an ultraviolet ray absorbent, a protein derivative, an animals-and-plants extract or extra KUKUTO, a germicide, coloring matter, perfume, and conditioning agents (a cationic polymer, both-sexes polymer, etc.) can be mentioned, for example.

[0019]

[Effect of the Invention] With a specific nonionic surface active agent, the shampoo constituent of this invention can give the flexibility and skid nature which were excellent to hair, and can finish hair softly and smoothly while it has the foam formation force which was excellent by having blended the guanidine derivative.

[0020]

[Example] Next, an example explains this invention to a detail further.

[0021] The shampoo constituent of the component presentation (% of the weight) shown in one to example 10 table 1 was prepared, and the engine performance was evaluated. The result is shown in Table 1. In addition, the performance evaluation of a shampoo constituent followed the foam formation force and the flexibility grant effectiveness. The evaluation approach about these is shown below.

[0022] (1) The pair comparison method in comparison with the case where a commercial shampoo with 20 circuit testers is used by the half head method estimated using the shampoo constituent in which the foam formation force carried out evaluation preparation, respectively. The valuation basis is as follows. valuation-basis O: -- O: superior to a commercial item -- **: which is a little superior to the commercial item -- a commercial item and EQC x: -- [0023] inferior to a commercial item (2) The evaluation flexibility grant effectiveness of the flexibility grant effectiveness washed hair using the prepared shampoo constituent, and evaluated it by three points, the dynamic friction coefficient of the hair after washing, the smoothness of hair, and the ease of being collected of hair. These evaluation approaches of three points are as being shown below, respectively.

** After a line rinsed rubbing for cleaning of hair (5g, 20cm) for 1 minute using 1.0g of shampoo constituents which carried out dynamic friction coefficient preparation, it was left for 24 hours and made to dry all over the thermostatic chamber of the temperature of 25 degrees C, and 65% of relative humidity. After desiccation was completed, the dynamic friction coefficient was measured using coefficient-of-friction meter (Japanese rheology device company make, NRF mold dynamic friction coefficient meter). In addition, it can judge with 0.17 or less thing having a smooth dynamic friction coefficient by contrast with the smoothness of the hair by organoleptics.

** It washed using the shampoo constituent prepared in the smoothness and the ease of being collected of hair, and the pair comparison method in comparison with the case where a commercial shampoo is used according the smoothness and the ease of being collected of hair (5g, 20cm) which finished a rinse and desiccation to 20 circuit testers estimated, respectively. The valuation basis is as follows.

valuation-basis O: -- O: superior to a commercial item -- **: which is a little superior to the commercial

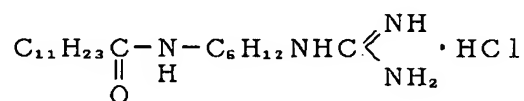
item -- a commercial item and EQC x: -- [0024] inferior to a commercial item In addition, the concrete contents of A-1 to A-4 component shown in Table 1 are as follows.

A-1 : lauric-acid sugar ester A-2 : N and N-dimethyl N-lauryl amine oxide A-3 : C₁₂H₂₅-O-(C₂H₄O)₃-HA-4 : The concrete contents of guanidine derivative A-E shown in C₉H₁₉-C₆H₄-O-(C₂H₄O)₈₃-H and Table 1 are as follows.

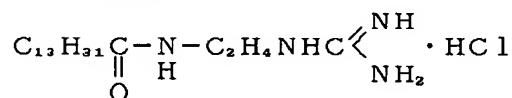
[0025]

[Formula 2]

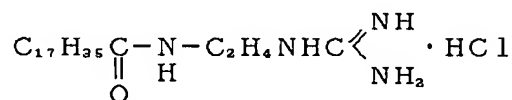
(グアニジン誘導体A)



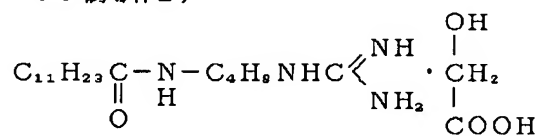
(グアニジン誘導体B)



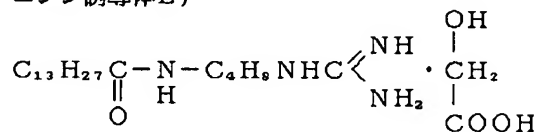
(グアニジン誘導体C)



(グアニジン誘導体D)



(グアニジン誘導体E)



[0026]

[Table 1]

項 目		実 施 例									
		1	2	3	4	5	6	7	8	9	10
成 分 A 重 量 %	A-1	20	20	20	20	20					10
	A-2						20	20			10
	A-3								20		
	A-4									20	
	γ-アミノ酪氨酸A	0.5									
	γ-アミノ酪氨酸B		0.5								
	γ-アミノ酪氨酸C			0.5							
	γ-アミノ酪氨酸D				0.5		0.5				1.0
	γ-アミノ酪氨酸E					0.5		0.5	0.5	0.5	
	精製水	残 部									
性 能	起泡力	○	○	○	○	○	◎	◎	◎	○	◎
	動摩擦係数	0.16	0.16	0.16	0.15	0.15	0.16	0.16	0.17	0.17	0.16
	毛髪の手触り	◎	◎	◎	◎	◎	◎	◎	○	○	◎
	毛髪の手とまり易さ	◎	◎	◎	◎	◎	◎	◎	○	○	◎

[0027] The result shown in Table 1 shows that the shampoo constituent of this invention which blended the nonionic surface active agent and guanidine derivative of A-1 to A-4 shows the engine performance which was excellent in bubbles, a dynamic friction coefficient, the smoothness of hair, and the ease of being collected of hair.

[0028] The shampoo constituent of the component presentation (% of the weight) shown in one to examples 11-14 and example of comparison 6 table 2 was prepared, and the performance evaluation was performed like the example 1. The result is shown in Table 2.

[0029]

[Table 2]

項 目		実施例				比較例					
		11	12	13	14	1	2	3	4	5	6
成 分 A 重 量 %	A-1				10				20		15
	A-3	20	15	15	10					20	
	γ-アミノ酪氨酸D	1		1	1	5					
	γ-アミノ酪氨酸E		1				5	5			
	第4級窒素含有セロース		0.5	0.5	0.5			0.5			
	ヤシ油脂肪酸セチルアルコール	3	1		3			3			
	α-オレフィン sulfonate ナトリウム		5			15	10	15			
	POE7-オキシエーテル硫酸ナトリウム			5			5		1		
	精製水	残 部									
	起泡力	◎	○	○	◎	×	×	×	○	◎	△
性 能	動摩擦係数	0.16	0.15	0.15	0.15	0.22	0.22	0.21	0.20	0.20	0.20
	毛髪の手触り	◎	◎	◎	◎	×	×	×	○	×	×
	毛髪の手とまり易さ	◎	◎	◎	◎	×	×	○	×	×	×

[0030] The shampoo constituent of the component presentation (% of the weight) shown in example 15

table 3 was prepared, and the engine performance was evaluated like the example 1. The result is shown in Table 3.

[0031]

[Table 3]

成 分	重量%
ラウリン酸シュガーエステル	10
N, N-ジメチルN-ラウリルアミノオキシド	10
グアニジン誘導体B	0.7
第4級塩素含有セルロース	0.8
ヤシ油脂肪酸ジエタノールアミド	4
B H T	微量
安息香酸塩	0.9
水酸化ナトリウム	pH中性に調整
硫酸ナトリウム	2
赤色106号+黄色4号	微量
香料	適量
精製水	残部
起泡力	○
動摩擦係数	0.14
毛髪の手触り	◎
毛髪の手ざり	◎

[0032] The shampoo constituent of the component presentation (% of the weight) shown in example 16 table 4 was prepared, and the engine performance was evaluated like the example 1. The result is shown in Table 4. In addition, the both-sexes polymers shown in Table 4 are the N-meta-chloroethylene N, and N-dimethylammonium and an alpha-N-methyl carboxy betaine methacrylic-acid butyl copolymer (trade name: Yuka Former 204WL, Mitsubishi Petrochemical Co., Ltd. make).

[0033]

[Table 4]

成 分	含量%
ラウリン酸シュガーエステル	10
A-9	10
メチルグリシドカプリル酸エステル	3
グアニジン誘導体B	1
ステアリルトリメチルアンモニウムクロライド	0.5
ヤシ油脂肪酸ジエタノールアミド	3
エチレングリコールジステアレート	1
カチオン性ポリマー	1
B H T	微 量
安息香酸塩	0.9
水酸化ナトリウム	pH中性に調整
硫酸ナトリウム	2
緑色3号+黄色4号+赤色106号	微 量
香 料	適 量
精製水	残 部
起泡力	○
動粘度係数	0.14
毛髪への付着性	◎
毛髪への持続性	◎

* モノ：ジ：トリ＝70：25：5（重量比）

[Translation done.]